

Application No. 10/692,479

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*AMENDMENTS TO THE CLAIMS*

1. (Currently Amended) A thermal head printer for printing ~~but not perforating~~ a substantially light-insensitive thermographic material, said thermal printer said ~~thermographic material and comprising:~~

(a) ~~[[ - ]]~~ a transport system having a transport direction,

(b) ~~[[ - ]]~~  $n$  thermal heads, where  $n$  is an integer greater than zero, each of said thermal heads comprising an array of substantially rectangular energizable heating elements, said heating elements having a length  $L_n$  in said transport direction and a pitch  $P_n$  between adjacent heating elements, and

(c) ~~[[ - ]]~~ a means for supplying electrical energy to each of said substantially rectangular energizable heating elements in at least one of said thermal heads, ~~[[ - ]]~~

wherein said transport system ~~being~~ is capable of transporting said light-insensitive thermographic material in contact or proximity with at least one of said thermal heads, wherein at least one of said thermal heads comprises heating elements for which  $L_n/P_n$  is between 0.25 and 0.88, wherein said printer is capable of image-wise printing said substantially light-insensitive thermographic material, and wherein said substantially light-insensitive thermographic material is not perforated by said printer.

2. (Currently Amended) ~~The thermal~~ Thermal head printer according to claim 1, wherein said thermal head printer comprises a replaceable thermal head or set of thermal heads.

3. (Canceled)

4. (Currently Amended) ~~The thermal~~ Thermal head printer according to claim 1, wherein said substantially rectangular heating element is a split resistor.

5. (Currently Amended) A process for printing a substantially light-insensitive thermographic material with a thermal head printer for printing ~~but not perforating~~ a substantially light-insensitive thermographic material, ~~said thermal printer said thermographic material and comprising:~~

(a) providing a thermal head printer which comprises

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(i) ~~[[ - ]]~~ a transport system having a transport direction,  
(ii) ~~[[ - ]]~~  $n$  thermal heads, where  $n$  is an integer greater than zero, each of said thermal heads comprising an array of substantially rectangular energizable heating elements, said heating elements having a length  $L_n$  in said transport direction and a pitch  $P_n$  between adjacent heating elements, and  
(iii) ~~[[ - ]]~~ a means for supplying electrical energy to each of said substantially rectangular energizable heating elements in at least one of said thermal heads,  
~~—said transport system being capable of transporting said light-insensitive thermographic material in contact or proximity with at least one of said thermal heads,~~  
~~wherein at least one of said thermal heads comprises heating elements for which  $L_n/P_n$  is between 0.25 and 0.88, comprising the steps of:~~  
(b) choosing a thermal head,  
(c) providing said substantially light-insensitive thermographic material,  
(d) transporting said substantially light-insensitive thermographic material past said thermal head, and  
(e) image-wise heating of said substantially light-insensitive thermographic material by supplying electrical energy to said heating elements,  
wherein said transport system is capable of transporting said light-insensitive thermographic material in contact or proximity with at least one of said thermal heads,  
and wherein at least one of said thermal heads comprises heating elements for which  $L_n/P_n$  is between 0.25 and 0.88.

6. (Currently Amended) The process ~~Process~~ according to claim 5, wherein said thermal head printer comprises a replaceable thermal head or set of thermal heads.

7. (Canceled)

8. (Currently Amended) The process ~~Process~~ according to claim 5, wherein said substantially rectangular heating element is a split resistor.

9. (Currently Amended) A ~~second~~ process for printing a substantially light-insensitive thermographic material at different printing speeds with a thermal head

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comprising heating elements without significant variation in image tone, wherein the length of said heating elements in the transport direction of said substantially light-insensitive thermographic material decreases with decreasing printing speed.

10. (Currently Amended) A third process for printing a substantially light-insensitive thermographic material at different printing speeds with a different thermal head at each printing speed without significant variation in image tone, wherein each of said different thermal heads comprises heating elements with a different length in the transport direction of said substantially light-insensitive thermographic material, and wherein said length of said heating elements in the transport direction of said substantially light-insensitive thermographic material decreases with decreasing printing speed.

11. (New) A thermal head printer for printing a substantially light-insensitive thermographic printing material comprising:

- (a) a transport system having a transport direction,
- (b)  $n$  thermal heads, wherein  $n$  is an integer greater than zero, each of said thermal heads comprising an array of substantially rectangular energizable heating elements, each element comprising a resistor, said heating elements having a length  $L_n$  in said transport direction and a pitch  $P_n$  between adjacent heating elements, and
- (c) a means for supplying electrical energy to each of said substantially rectangular energizable heating elements in at least one of said thermal heads,

wherein said transport system is capable of transporting said light-insensitive thermographic material in contact or proximity with at least one of said at least two thermal heads, wherein at least one of said thermal heads comprises heating elements for which  $L_n/P_n$  is between 0.25 and 0.88, wherein the width of a space between adjacent resistors along a line in the plane of said heating elements which bisects all the heating elements is 20% or less of  $P_n$ , wherein said printer is capable of image-wise printing said substantially light-insensitive thermographic material, and wherein said substantially light-insensitive thermographic material is not perforated by said printer

12. (New) The thermal head printer according to claim 11, wherein said thermal head printer comprises a replaceable thermal head or set of thermal heads.

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13. (New) A process for printing a substantially light-insensitive thermographic material using a thermal head printer comprising:

- (a) providing a thermal head printer which comprises
  - (i) a transport system having a transport direction,
  - (ii)  $n$  thermal heads, wherein  $n$  is greater than zero, each of said thermal heads comprising an array of substantially rectangular energizable heating elements, each element comprising a resistor, said heating elements having a length  $L_n$  in said transport direction and a pitch  $P_n$  between adjacent heating elements, and
  - (iii) a means for supplying electrical energy to each of said substantially rectangular energizable heating elements in at least one of said thermal heads,
- (b) choosing a thermal head,
- (c) providing said substantially light-insensitive thermographic material,
- (d) transporting said substantially light-insensitive thermographic material past at least one of said thermal heads, and
- (e) image-wise heating said substantially light-insensitive thermographic material by supplying electrical energy to said heating elements,

wherein said transport system is capable of transporting said light-insensitive thermographic material in contact or proximity with at least one of said thermal heads, wherein at least one of said thermal heads comprises heating elements for which  $L_n/P_n$  is between 0.25 and 0.88, wherein the width of a space between adjacent resistors along a line in the plane of said heating elements which bisects all the heating elements is 20% or less of  $P_n$ , and wherein said substantially light-insensitive thermographic material is not perforated by said printer.

14. (New) The process according to claim 13, wherein said thermal head printer comprises a replacable thermal head or set of thermal heads.

15. (New) The thermal head printer according to claim 1, wherein said one or more thermal heads comprises a plurality of thermal heads.

16. (New) A thermal head printer for printing a substantially light-insensitive thermographic material comprising:

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- (a) a transport system having a transport direction,
- (b)  $n$  thermal heads, wherein  $n$  is at least two, each of said thermal heads comprising an array of substantially rectangular energizable heating elements, said heating elements having a length  $L_n$  in said transport direction and a pitch  $P_n$  between adjacent heating elements, and
- (c) a means for supplying electrical energy to each of said substantially rectangular energizable heating elements in at least one of said thermal heads,

wherein said transport system is capable of transporting said light-insensitive thermographic material in contact or proximity with at least one of said at least two thermal heads, wherein at least one of said at least two thermal heads comprises heating elements for which  $L_n/P_n$  is between 0.25 and 0.88, wherein said substantially light-insensitive thermographic material is not perforated by said printer, and wherein said at least two thermal heads are configured such that a first thermal head can be replaced by an  $n$ th thermal head while being capable of maintaining a comparable image tone with said substantially light-insensitive thermographic material.

17. (New) A process for printing a substantially light-insensitive thermographic material using a thermal head printer comprising:

- (a) providing a thermal head printer which comprises
  - (i) a transport system having a transport direction,
  - (ii)  $n$  thermal heads, wherein  $n$  is at least two, each of said thermal heads comprising an array of substantially rectangular energizable heating elements, said heating elements having a length  $L_n$  in said transport direction and a pitch  $P_n$  between adjacent heating elements, and
  - (iii) a means for supplying electrical energy to each of said substantially rectangular energizable heating elements in at least one of said thermal heads,
- (b) choosing a thermal head,
- (c) providing said substantially light-insensitive thermographic material,
- (d) transporting said substantially light-insensitive thermographic material past said thermal head, and
- (e) image-wise heating said substantially light-insensitive thermographic material by supplying electrical energy to said heating elements,

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wherein said transport system is capable of transporting said light-insensitive thermographic material in contact or proximity with at least one of said thermal heads, wherein at least one of said thermal heads comprises heating elements for which  $L_n/P_n$  is between 0.25 and 0.88, and wherein a first thermal head can be replaced by an nth thermal head while being capable of maintaining a comparable image tone with said substantially light-insensitive thermographic material.

This listing of claims replaces all prior versions, and listings, of claims in the application.